ABSTRACT OF THE DISCLOSURE

Disclosed are methods and apparatus for avoiding problems caused by converting between two different protocols, such as IPv4 and IPv6. These problems may include, but are not limited to, fragmentation of packets, dropping of packets, and retransmission of packets. Avoiding these problems will reduce the incidence of transmission delays, bandwidth degradation, and additional processing in the packet's transmission path due to such problems. In general terms, the present invention provides mechanisms for modifying a protocol parameter, such as a TCP or UDP parameter, to avoid problems associated with protocol translation, such as fragmentation. In one implementation, the protocol parameter limits the size of a particular portion of the a packet transmitted by a sending computer node or device. For example, a packet size indicator is communicated to the sending computer node so that the sending computer node sends packets limited by the packet size indicator to thereby avoid associated with the size of such packets. In specific TCP embodiments, the size indicator specifies a window size and/or a maximum segment size. For example, if packets transmitted by a sending node to a receiving node are converted from IPv4 to IPv6 and the window size indicated to the sending node (*e.g.,* by the receiving node) is 512 bytes, the window size is adjusted to 500 bytes before reaching the sending node. The adjustment amount may be based on an estimated size increase resulting from converting from IPv4 to IPv6. In this example, the window size is decreased by 12 bytes since a conversion from IPv4 to IPv6 where one 4 byte IPv4 address is changed to a 16 byte Ipv6 address has an associated size difference of 12 bytes. In a specific embodiment, actual changes in packet size may tracked and the adjusted size indicator may be dynamically based on such tracked changes. In other embodiments, the changes in packet size are predicted, and the adjusted size is preemptively changed as needed.

CISCP209   32